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ABSTRACT

This followup study of the effects of the Mother-Child Home Program developed by the Verbal Interaction Project (VIP) measures the school performance of nine groups of 162 third grade children from low income families. The program of 92 home sessions spaced over two school years focused on the mother and child as a socially interactive dyad, and aimed at enhancing the child's cognitive development by increasing the mother's interactive behavior within the context of her close bond with her child. Twice a week for seven months each year, half-hour home sessions were conducted by a toy demonstrator who modelled techniques the mother could use to stimulate verbally interactive behavior in the child. The third grade evaluation was conducted by the VIP and the children's teacher. The Wechsler-Intelligence Scale for Children and subtests of the Wide Range Achievement Test were used. Teachers rated children on their socioemotional behavior using the program-developed Child's Behavior Traits (CBT). Program effects were demonstrated in the performance of 78 children who entered the program in the years 1968, 1969 and 1970. Results of the evaluation indicated that the three groups of program graduates reached national norms in their third grade reading and arithmetic scores which were significantly higher than those of the control groups. Also, in comparison to the control groups, a larger proportion of program graduates reached third grade at the expected age. Finally, the mean IQs of two of the three groups slightly surpassed the national norm at third grade, although there was no statistically significant IQ difference from the control group when one of the latter was excluded from the data analysis. (CM)

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Final Report

Developmental Continuity Consortium

Follow-up Study

THIRD GRADE EFFECTS OF THE MOTHER-CHILD HOME PROGRAM[1]

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Third Grade Effects of the Mother-Child Home Program

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In 1972 the Mother-Child Home Program, developed by the Verbal Interaction Project for low income families, was chosen by the U.S. Office of Education as a model compensatory education program. This was on the basis of an out-of-project evaluation of its short-term effectiveness. According to the evaluation report, "it can be concluded that the Mother-Child Home Program achieved its objectives in producing statistically and educationally significant IQ gains" (Wargo, Campeau & Tallmadge, 1971, p. 131). But would the effects implied by these gains last? Could this minimal program have a significant effect on its graduates' actual school performance, as intended?

To investigate this question, the Verbal Interaction Project (VIP) followed up, into first grade, and then into third grade, 162 children in 9 groups which had entered the project from 1967 through 1972. Three Treated Groups (78 children) had had the full two-year Mother-Child Home Program. Three other Treated Groups (33 children) had had much shorter versions. And three Control Groups (51 children) had had evaluations, but no program. The children's performance in third grade is the subject of this report.

The Program

The Mother-Child Home Program was developed in 1967 and reached its current two-year format in 1968 (Levenstein, 1970). It is still in operation in Freeport, New York, and in 22 other locations in the country. It was a voluntary, "no strings attached", home-based early education program for low income two-to four-year-olds and their mothers. ("Mother" means any adult who has a primary nurturing and enduring relationship with the child.) The program of 92 home sessions, spaced over two school years, was explicitly addressed to mother and child as a socially interactive dyad.

The Program had an interdisciplinary theoretical foundation. Its major premise was that small children's cognitive development is fostered by concept-enhancing verbal interaction within the family. The Program's major aim was to increase the mother's interactive behavior within the context of her close bond with her child--capitalizing on mother love, to quote a Carnegie Quarterly article about the program.

The mother-child dyad was in the Program for two school years, starting when the child was about age 2 and continuing until he or she was about age 4. The program's half-hour Home Sessions occurred twice a week for 7 months in each of 2 years, following the local school calendar for a total of 46 visits each year. A home visitor called a "Toy Demonstrator" visited mother and child together. Without any teaching or counseling, she modeled for the mother techniques that the mother could use with her child in play around colorful, progressively complex curriculum materials: commercially available toys and books selected to stimulate verbally interactive behavior. The books and toys were called Verbal Interaction Stimulus Materials, or "VISM", and there was one for each of the 23 weeks of the Program in each of the two years. The VISM were permanently assigned to the child, for continuing stimulation of verbal interaction and as a bridge to school experience.

The Toy Demonstrators were paid or volunteer women who needed to have no previous work experience nor education beyond high school. They learned their skills from a college educated Program Coordinator in an initial 8-session Training Workshop, then in weekly groups and in less frequent individual conferences.

The Program's curriculum was a fun oriented, developmentally appropriate Guide Sheet for each VISM. The core of all 46 Guide Sheets was exactly the same. The core element was a list of concepts (e.g., colors, shapes, sizes) and cognitively related behaviors (e.g., matching, choosing, pretending) concretized by illustrative examples taken from the book or toy for which the Guide Sheet was written. (For detailed curriculum description, see Levenstein, 1977.)

Distinguishing features of the Mother-Child Home Program were:

1) an explicit, written, non-didactic two year method aimed to be independent of special staff skills or charisma, yet allowing for creativity;

2) explicit techniques to prevent intrusiveness, or infringements on the voluntary nature of the program;

3) an explicit, written curriculum in small, comprehensible bits;

4) training of home visitors to model interactive techniques, and to refrain from teaching or counseling;

5) permanent assignment over the two years of 22 toys and 24 books, as stable curriculum materials.

The program appeared to have been highly acceptable to the families enrolled in it. Of mothers invited to enroll, about 85% accepted. Mothers kept 85% of the Home Session appointments. Attrition over the two year program did not exceed 30%.

Description of Subjects

The nine groups of 162 children in the third grade follow-up study, like all VIP subjects, came from low income families. They lived in poverty pockets of Long Island, New York, and almost all were Black or Hispanic, although they had to fill only low income criteria for VIP admission.

The nine groups are listed, with salient background characteristics, in Table 1: Demographic Characteristics of Program and Control Children at Entry into VIP. Each group has a code name which tells which year the group entered the VIP; whether the group was Treated (T) and Control (C); and what treatment the Group received, by the following abbreviations:

I = Program I, or first year of the Program.

II = Program II, or second year of the Program.

I+Short II = Program I, plus truncated version of Program II.

I+IID = Program I, plus "drop off" of VISM in place of first Home Session of week in Program II followed by a normal second Home Session.

C_1+I = Comparison Group which received non-program home visits in first year followed by one year of Program I.

Test only = no treatment except evaluations.

Table 1

Demographic Characteristics of Program and Control Children at Entry into VIP

	Child			Father			Mother		Family
Entry Year Treatment Group	N	Age	Male	Years of School	% Occup. 6 or 7[a]	% Always Present	Years of School	% Rec'd. Welfare	No. of Children
Program Groups									
Less than 2 MCHP years									
1967 T67-I	12	3	33.3	9.7	83.3	58.3	10.7	25.0	2.1
1967 T67-I + Short II	14	2	64.3	10.1	100.0 (N=13)	85.7	11.4	21.4	3.1
1967 T67-C_1 + I	07	2+3	85.7	9.8 (N=5)	85.7	71.4	10.4	14.3	2.7
2 MCHP Years									
1968 T68-I + II	24	2	41.7	10.5 (N=23)	71.4 (N=21)	58.3	10.5	37.5	2.8
1969 T69-I + II	25	2	52.0	11.2 (N=20)	68.2 (N=22)	62.5 (N=24)	10.3 (N=24)	44.0	2.4
1970 T70-I + IID	29	2	55.2	9.9 (N=28)	85.7 (N=28)	75.9	10.3	24.1	2.6
Control Groups									
1967 C_2-67 Test Only	14	2&3	78.6	10.3	78.6	92.9	11.1	7.1	2.4
1967 C_4-67 Test Only	10	4	50.0	10.3 (N=9)	71.4 (N=7)	20.0	10.6	60.0	3.4
1972 C_5-72 Test Only[b]	27	6	48.1	9.6 (N=18)	100.0 (N=9)	25.9	10.2	80.0 (N=25)	3.0

*Unless otherwise specified, cell calculations are based on the total N for the group.

[a]Hollingshead scales 6 or 7 (unemployed, unskilled, semi-skilled); including available data for absent fathers not meeting entry occupational criteria.

[b]C_5 72 entered in 1972 - 1973 as after-only group.

The low income status of all nine groups is demonstrated by the information about them in Table 1. From 68% to 100% of fathers were in semiskilled or unskilled occupations, or were unemployed. From 14% to 80% of the mothers received welfare aid. The average education of both parents was below 12th grade. It was noted that Control Group "C_5 - 72" was somewhat lower than the other groups in parents' education and higher in the proportion receiving welfare aid. Group C_5 - 72 had been recruited in first grade in 1972 as an "after only" control group (no previous contact with the Verbal Interaction Project) to be matched to Program Group "T68 - I+II".

Third Grade School Measures

Four years after the 1968 to 1970 program children and their mothers completed the Mother-Child Home Program, the treated and control children reached third grade. From 1971 on, as each group came to about the middle of the third grade school year, the children in it were evaluated by the Verbal Interaction Project and by their teachers. The VIP gave them a cognitive test (Wechsler Intelligence Scale for Children) and tests of reading and arithmetic achievement (subtests of the Wide Range Achievement Test). Their teachers rated them on their classroom socioemotional behavior on the program-developed Child's Behavior Traits, or CBT. Starting in 1974, the teachers also indicated whether the children had severe academic problems, whether they were in special classes, and whether they had been retained, promoted, or skipped, in their school progress from grade to grade.

Third Grade Results

The reading, arithmetic and IQ level of the nine groups varied approximately with the amount of program treatment each group received. The scores for the groups are shown in Table 2: IQ, Academic, Socioemotional Scores for Program and Control Children in Third Grade.

With one exception, the three groups which received the full 2-year Mother-Child Home Program (78 children who entered in 1968, 1969, and 1970)

Table 2

IQ, Academic, Socioemotional Scores for Program and Control Children in Third Grade

Subject Group and Year[b]	Variable	Entry IQ (N)		Post-MCHP		Third Grade Scores				
		Cattell	Stanford Binet	Stanford Binet IQ[a]	WISC IQ	WRAT Reading	WRAT Arithmetic	CBT Socio-Emotional	Severe Ac. Problems	Special Class
	Less-than-2-year and 2-year Program Groups									
T67-1	N	0 (0)	12(16)	12	12	12	12	12		
	Mean or %		90.4	106.3	94.6	92.0	91.3	61.5	No	No
(1972-1973)	S.D.		11.9	17.2	10.6	5.6	12.1	18.0	Data	Data
	Age		3	4	8	8	8	8		
T67-I +	N	14(18)	0(0)	12	14	14	14	14		
Short II	Mean or %	82.4		102.8	97.4	98.4	97.9	61.4	No	No
(1973-1974)	S.D.	6.8		11.4	10.5	14.4	8.8	21.6	Data	Data
	Age	2		4	8	8	8	8		
T67-C_1 + 1	N	3(4)	3(5)	7	7	7	7	6		6
	Mean or %	86.7	92.3	99.1	108.0	95.9	96.0	52.5	No	16.7%
(1973-1974)	S.D.	15.0	5.9	11.4	11.2	13.2	8.6	21.6	Data	
	Age	2	3	4,5	8,9	8,9	8,9	8,9		8,9
T68-I + II	N	13(15)	11(13)	19	24	24	24	24	23	24
2-Year	Mean or %	88.4	91.3	109.0	103.9	101.7	99.8	72.0	21.7%	12.5%
MCHP	S.D.	12.2	3.7	8.6	10.9	14.9	13.7	18.3		
(1974-1975)	Age	2	2	4	8	8	8	8	8	8
T69-I + II	N	25(31)	0(2)	21	25	25	25	23	23	23
2-Year	Mean or %	85.5		103.7	98.3	97.8	99.9	60.4	39.1%	13.0%
MCHP	S.D.	9.8		11.3	8.0	12.4	10.2	13.1		
(1975-1976)	Age	2		4	8	8	8	8	8	8
T70-I + IID	N	29(41)	0(0)	23	29	29	29	28	28	28
2-Year	Mean or %	88.6		107.2	100.8	101.7	104.8	61.9	28.6	7.1%
MCHP	S.D.	8.6		12.3	10.7	11.6	8.3	21.9		
(1976-1977)	Age	2		4	8	8	8	8	8	8
	Control Groups									
C_2-67	N	9(12)	5(7)	14	14	14	14	14		14
	Mean or %	93.4	88.0	96.3	96.1	87.4	90.1	58.4	No	35.7%
Control	S.D.	8.0	10.3	11.8	15.0	17.3	17.4	13.5	Data	
(1973-1974)	Age	2	3	4.5	8,9	8,9	8,9	8,9		8,9
C_4-67	N			10(10)	10	10	10			
	Mean or %	Entry post MCHP.		91.0	96.3	91.1	91.4	No	No	No
Control	S.D.	Entry IQ same as		8.2	10.3	13.3	13.0	Data	Data	Data
(1971-1972)	Age	post - MCHP IQ.		4	8	8	8			
C_5-72	N		27(30)		27	27	27	27	27	27
	Mean or %	Entry 1972	90.7	No	93.9	90.5	93.7	62.8	44.4%	7.4%
Control	S.D.	Entry IQ =	11.3	Data	8.7	15.7	9.9	22.4		
(1974-1975)	Age	WISC	6		8	8	8	8	8	8

[a] Some subjects in some groups not available

[b] School year in which 60% or more of group was in third grade.

were the highest of all nine groups in standardized tests of their reading, arithmetic, and IQ skills. Their differences from the other groups in reading and arithmetic were statistically significant. The differences in IQ were not, although they had been at about age five, (Madden, Levenstein, and Levenstein, 1976). Program graduates' scores in all three areas, were close to the national norms (Roberts, J., 1971; Schaie and Roberts, 1970), and considerably above the average to be expected for their demographic characteristics. (It was decided that the demographic status of the C_5 - 72 control group was sufficiently different from other groups to exclude the below-norm scores of this group from data analyses.)

Consistency among scores was found for all groups, with the one exception noted in the preceding paragraph: the very high IQ (108) of Group "T 67-C+1" was not consistent with its other scores. The reasons for this group's puzzling performance are unclear but may perhaps be found in the very small number in the group, since small numbers can produce atypical results simply by chance.

The percentage of severe academic problems varied from group to group; two out of the three 2-year Treated Groups had far lower proportions of severe problems than the one Control Group in which this variable was measured. The proportions of children in special classes were consistently low in all three of the 2-year Treated Groups but varied widely between the two Control Groups measured (35.7% for one, 7.4% for the other). No statistically significant differences were found among the rather moderate group means for classroom socioemotional behavior.

The proportion of children who were in the school grade expected for their ages (e.g., not failed) was 86% for program graduates, 75% for partial-program graduates, and 62% for non-program children. (No data were available for Group T 67-1 and Group C_4-67.)

The 162 children in the 9 groups were 79% of the original 204 children who had entered the VIP in 1967, 1968, 1969, and 1970. It was not possible to locate the other 42 children usually because their families had moved and left no forwarding addresses. As indicated by the entry Ns in parentheses on

Table 2, this attrition was distributed fairly evenly among the nine groups.

Discussion

Program effects were demonstrated in the third grade performance of the 78 children who entered the 2-year Mother-Child Home Program in 1968, 1969, and 1970.

The three groups of program graduates reached national norms in their third grade reading and arithmetic scores, contrary to expectations for their demographic background. Their reading and arithmetic scores were also significantly higher than those of the control groups. A larger proportion of program graduates reached third grade at the expected age, in comparison to the control groups. Finally, the mean IQs of two of the three program groups slightly surpassed the national norm at third grade, although there was no statistically significant IQ difference from the control group when one of the latter was excluded from the data analysis.

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